DOCUMENT RESUME

ED 125 529 IR 003 561

AUTHOR Price, Robert D.
TITLE Managing the Instructional Development Process.
PUB DATE Mar 76
NOTE 23p.; Paper presented at the Association for Educational Communications and Technology Annual Conference (Anaheim, California, March 28-April 2, 1976)
AVAILABLE FROM Robert D. Price, A108 East Fee, Michigan State University, East Lansing, Michigan 48824

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Higher Education; *Instructional Design; Management Development; Management Education; *Management Systems; Organizational Communication; *Organizational Development; Systems Approach; Task Analysis
IDENTIFIERS AECT 76; *Instructional Development; Instructional Management; Michigan State University; Project Management

ABSTRACT

The Office of Health Services Education and Research at Michigan State University has clarified the functions of planning, organization, coordination, monitoring, and assessing instructional development projects. Each management function can be applied to the process of instructional development in order for the manager to achieve several objectives: to have a detailed operational plan for projects; to be organized to complete projects; to have a coordinating system for projects; to have monitoring for projects; and to have a specific design for assessing management of projects. (CH)

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ED125529

MANAGING THE INSTRUCTIONAL DEVELOPMENT PROCESS

by

Robert D. Price, Assistant Professor
Office of Health Services Education and Research
College of Human Medicine
Michigan State University
East Lansing, Michigan 48824

A paper presented at the
National Convention of the
Association for Educational Communications and Technology
Division of Instructional Development
Anaheim, California
March 29, 1976

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MANAGING THE INSTRUCTIONAL DEVELOPMENT PROCESS

by

Robert D. Price*

Introduction

What I would like to share with you today are a few projects we at OHSER (Office of Health Services Education and Research), College of Human Medicine, Michigan State University, have done in recent years concerning how certain management functions can be applied to instructional development processes. Not all of this thinking has been original because we have borrowed from some of the excellent works of Desmond Cook, Castelle Gentry, Charles Johnson and Joseph Massie, just to mention a few.

By instructional process we mean a systematic process as represented by such models as the Instructional Development Institute's nine-step model or any one of many other excellent approaches that have been written about and are being used by instructional developers across the country. As instructional developers implement these processes in order to develop or redevelop instructional systems, the arrangement and large numbers of tasks, people and amounts of money within a predetermined time frame in order to achieve specific goals can be overwhelming, especially if the developer has undertaken several projects at the same time. The complexity of any developer's activities from a management point of view will, of course, depend on the number and size of each of the development projects.

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*Robert D. Price, Assistant Professor, Office of Health Services Education and Research, College of Human Medicine, Michigan State University, East Lansing, Michigan 48824. March 29, 1976.

Like a lot of other developers, I received little formal preparation in my graduate programs in the specifics of how to manage the developmental activities. Little training occurred in management as it related to helping a faculty member to improve the quality of instruction; organizing a department toward increased adoption of systematic development; implementing a large, generously endowed development project; or all three and more, at the same time. As I pursued my own activities, watched and worked with others, I observed that few people planned comprehensively, organized people and tasks completely, coordinated and communicated effectively, monitored progress of a project in a systematic manner, or assessed the effectiveness of any attempt at management.

Most of us learn through education and/or experience about how to write objectives, develop instructional strategies, identify and produce print and non-print instructional materials, construct reliable and valid evaluation systems, and maybe even how to assess need, diffuse process or products and change client systems through organizational development techniques. However, most of us have not developed a science of effectively and efficiently managing numbers of individuals and groups through these processes within the constraints of time and money.

On Defining Instructional Development Management

Management can be defined as a process of decision making and implementation of the accomplishment of project goals by the execution of a set of tasks by people within time, cost and performance specifications. The study of this process has generally been conducted by individuals associated with business enterprises. As a result, management has been equated with business,

and other disciplines have been slow to adopt and generalize it to their own area. The functions and principles of management can be adopted to other disciplines and can reduce significantly the hit-or-miss or intuitive approaches of getting things done through people.

A manager accomplishes tasks through people by applying the functions of the management process to the entire project. Management functions vary from author to author, but most agree that the major functions are: Planning, Organizing, Directing and Controlling. The definition of these basic management functions also vary from author to author, but they generally agree that planning is a decision making process organized within a predetermined course of action over a period of time. Organizing focuses primarily on the structure and process of allocating jobs so that the objectives of the project are achieved. Directing is generally described as the function which helps to facilitate people in doing their jobs, and controlling is the function which constantly measures current performance and guides it towards some predeterminted goal.

In attempting to manage projects over the last several years, OHSER has modified these functions slightly to facilitate their being adopted and used by people more readily. We have elaborated on the definitions slightly: changed the name of directing to coordinating, and controlling to monitoring. Because of the negative connotations, we found that people can more easily accept the terms "coordinate" and "monitor" than the terms of directing and controlling. We also added a fifth function, which is called assessment. The management functions that I want to talk about today are as follows:

Planning -- a set of initial decisions about the allocation of resources and human effort to an optimal set of tasks to attain specific desired goals.

Organizing -- involves the arranging of selected people in patterns of relationships relative to authority, responsibility, roles and accountability to facilitate accomplishment of desired goals.

Coordinating -- involves the employment of diverse forms of human interaction aimed at leading, motivating and guiding people in performance of their tasks.

Monitoring -- involves the detection of deviation between what is actually happening, the analysis of the deviation and its resulting solution decision, and the implementation of corrective action to insure successful accomplishment of the goals.

Assessing -- involves the development of procedures and necessary instrumentation for gathering data about the performance of the development/management systems for the purpose of decision making about improvement.

What we have done is to examine how each of these management functions can be applied to the development process. Gentry and Johnson, in "A Practical Management System for Performance-Based Teacher Education", first cued me to the possibility of such an approach to promote efficient and effective instructional development. The approach I have developed is graphically represented in Figure 1. Down the left side of Figure 1 are the management functions which have just been defined. Across the top are the nine steps from the Instructional Development Institute's nine-step model. The step that is missing is the management step, which the left side of Figure 1 develops more extensively. The basic principle involved is the application of each management function to each of the development steps. For example, when the planning function is applied to each step, it would be done for problem identification, analysis of the setting, identification of instructional objectives, methods specification, and so on for the rest of the steps. The same process would be followed for the rest of the management functions.

	Identify Problem	Analyze Setting	Identify Objectives	Specify Methods	Construct Prototypes	Test Prototypes	Analyze Results	Implement/ Recycle
Planning								
Organizing								
Coordinating								
Monitoring								
Assessing								

Figure 1: Development/Management Matrix

Examination of Management Functions

Now I would like to examine briefly each of the management functions and cite some specific examples of the action that would be carried out as the functions are applied to each step in the development process. The planning function is the first and most essential function, and the quality of the system depends on the thoroughness with which it is performed. The key components of the planning function are as follows:

1. Setting of goals.
2. Specifying work to be done.
3. Descriptive flow of the tasks.
4. Determining time schedules.
5. Determining costs and manpower needs.
6. Developing a budget.

Each of these components of the planning function would be applied to each step of the development process so that completion of all the steps in development would result in the complete systematic planning for a developmental project. Briefly, the setting of goals (planning function number 1) consists of defining in a specific way the general goals and performance objectives of the project. Specifying the work to be done (2) includes the specification of all tasks and sub-tasks that need to be completed in order to achieve the objective. Tasks and sub-tasks should be specified in detail for each objective. Developing a descriptive flow of the tasks (3) means the flow charting of the tasks and sub-tasks or using other similar descriptive tools such as the PERTing or a Task/Time/Talent chart. An example of such a chart is provided in Figure 2. As already indicated, related to this is the determining of time schedules (4). Such schedules can be graphically represented, along with the task specifications, in the flow chart on PERT network.

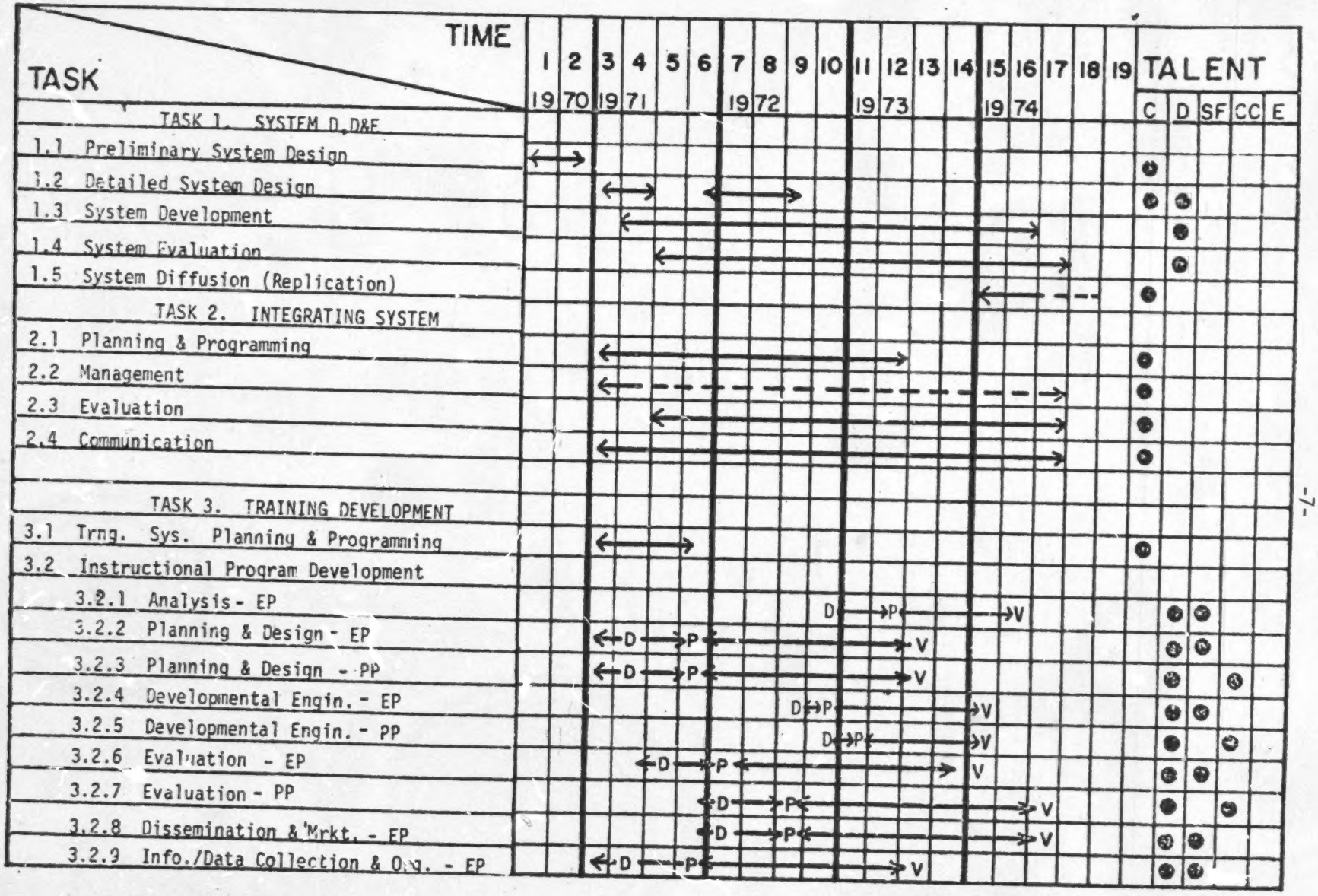

TIME
TASK
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
19 70 19 71 19 72 19 73 19 74
TALENT
C D SF CC E
TASK 1. SYSTEM D,D&E
1.1 Preliminary System Design
1.2 Detailed System Design
1.3 System Development
1.4 System Evaluation
1.5 System Diffusion (Replication)
TASK 2. INTEGRATING SYSTEM
2.1 Planning & Programming
2.2 Management
2.3 Evaluation
2.4 Communication
TASK 3. TRAINING DEVELOPMENT
3.1 Trng. Sys. Planning & Programming
3.2 Instructional Program Development
3.2.1 Analysis - EP
3.2.2 Planning & Design - EP
3.2.3 Planning & Design - PP
3.2.4 Developmental Engin. - EP
3.2.5 Developmental Engin. - PP
3.2.6 Evaluation - EP
3.2.7 Evaluation - PP
3.2.8 Dissemination & Mrkt. - EP
3.2.9 Info./Data Collection & O.g. - EP
D P V

FIGURE 2: Time, Talent and Task Chart

Adapted from Consortium for Development, Dissemination and Evaluation Training Materials, Far West Laboratory for Educational Research and Development, San Francisco, California.

Another example is provided in Figure 3. The Roman numerals in this Figure represent the talent or person responsible for the task. The difficulty comes in making time estimates for each of the tasks and sub-tasks. Time estimates must be made according to the best available data. Some estimates can be very precise, while others will be harder to estimate. In the latter case, it is wise to make low and high estimates and examine the consequences of each on the long-term plan. The rate at which a task can be completed is also directly related to the amount of resources that can be put into the task.

Determining costs and manpower needs (5) is the next component of the planning function and requires the determination of personnel, equipment, materials, services and travel needed for each of the project tasks and sub-tasks. Based on this kind of estimate, a budget can be generated for the project which will be allocated for tasks throughout the project (6).

The organizing function of management is concerned primarily with assignment of job responsibility. The components of this function are:

1. Definition of jobs.
2. Assignment of specific tasks.
3. Establishing lines of responsibility and accountability.
4. Establishing working relationships.

After the planning has been accomplished, the necessary jobs to complete the tasks should be defined (1). This would mean a close examination of the tasks and sub-tasks and developing of descriptions of positions to carry out the tasks. The grouping together of tasks and sub-tasks into sets of responsibility begins to define the kinds of positions necessary to complete the tasks. Assignment of all of the sets of tasks (2) or jobs becomes one of the next tasks of the development manager. People, then, become responsible for a set or sets of tasks. Both Figure 2 and Figure 3 show how this can be

Plan Items:	1975				1976											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
C_6 Prepare Course Outline (III, IV, V)											14 (Student Handout)					
C_7 Tape Modules (IX)						27	15	12	15	30	23	20	(NOTE: Assign Specific Modules)			
C_8 Field Testing (III, VI, VII)												9				
(a) Pilot							12		17			9				
(b) Screen Presenters						27										
(c) Analysis Pilot								1	30			15				
(d) Revise								10				30				
C_9 Operationalize Course (II, III)													25	(Include Scheduling Rooms, etc.)		
D_1 Est. Evaluation Design (III, VI, VII)				5												
(a) Preliminary Plan			21													
(b) Form. Eval. Procedures								1	30		15					
(c) Sum. Eval. Procedures					9			1							15	15
(d) Proj. Prog. Eval. Plan				5												
D_2 Collect Data (VI, VII)							12		17			9				15
D_3 Data Analysis (VI, VII)							12-->	1	17/30			9/15				15-Jan 10
D_4 Evaluation Reports -- Conclusions & Recommendations (VI, VII)																
(a) Project Prog.								5	5							
1. Product																
2. Process																
(b) Formative (Final)																
(c) Summative (Final)																

Figure 3: General Management Plan Check List

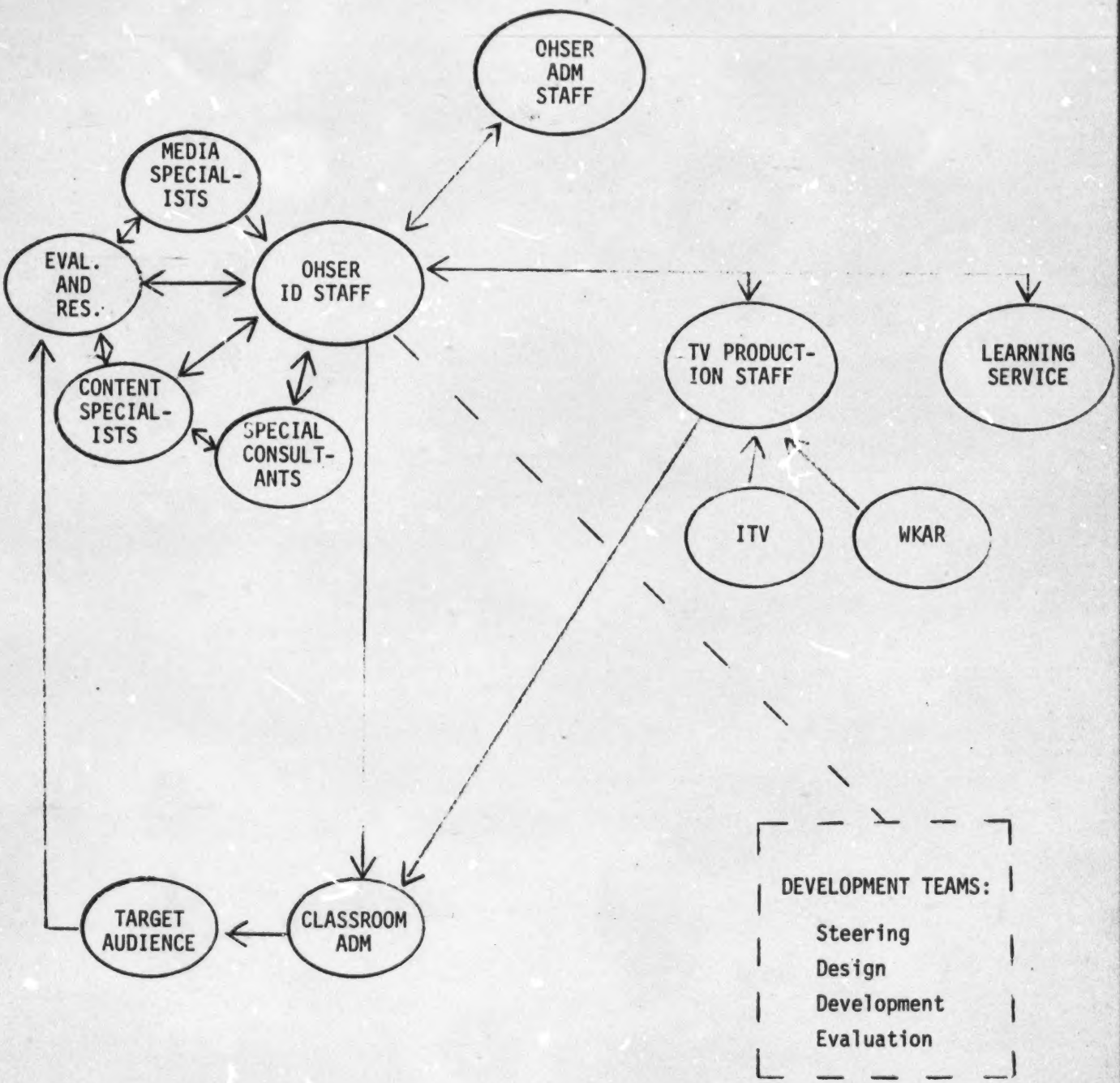
represented along with task identification and time schedules. A work plan is set up with each of the jobs and described in detail with the person responsible for the job. The work plan would consist of the specific strategies in carrying out the completion of the tasks. This work plan can be, and perhaps should be, negotiated with the person responsible for the task so as to consider individual style and work technique. They are oriented to the time frame, know to whom they are accountable (3), and know how their job relates to other jobs in the development project (4).

Figure 4 is one example of how the relationship between groups can be shown to communicate organizational relationships. In a recent development project in which I was the development manager, we had group development teams with a team leader. The team leader was accountable to two people and the dimensions of accountability differed. All team leaders were accountable to me for the completion of their total product, which was one part of the whole course. In addition, they were responsible to me for quality of the overall design. They were also responsible to the course manager for the quality of the body of knowledge represented in their design. The working relationship between each team leader was established so that their respective sub-unit did not overlap significantly, but integrated nicely into a whole course and did not result in a group of fragmented, sometimes overlapping units.

The coordinating function of management is essential to the completion of system objectives and primarily involves the human interaction of the management system. It includes:

1. Developing methods of communication.

Figure 4: Working Relationships



2. Identifying needs of the staff.

3. Developing a reward system for staff based on the needs assessment.

Communication (1) remains the crucial element to any management activity. It must be a two-way process, and it must be open. The manager must have specific methods of getting feedback from the staff and he should have a mechanism for providing relevant information. Two-way information flow can take place through regular meetings, memos and a variety of other methods. However, it is crucial that the kind of information match the medium. For example, certain kinds of information, with some people, are best communicated in person instead of by a memo. All staff should feel that the person to whom they are accountable will listen and is not closed to what they perceive as their important problems and needs. It is also important to understand that the load of information must be appropriate for the situation. There can be too much information flow (overload) or too little (underload), and both can cause dissatisfaction.

Figure 5 provides one example of the kinds of information which were managed in one project. In Appendix A there is an example of how communication lines are categorized and maintained.

Identifying the needs of the staff (2) is crucial to motivation and training. Through a discussion of the work plan mentioned under the organization function, the manager can identify which staff members need greater competency to complete the task and then institute a training procedure to increase such competency. The manager should also be able to identify the personal needs of the staff relevant to the project so that appropriate methods can be devised for rewarding the staff (3) for their efforts. The reward system will

Figure 5: Information Management

	Developmental Progress Reports	Budget Reports	Production Status Reports	Field Test Reports	Resource Material Reports	Minor Course Revisions	Major Course Revisions	Evaluation Reports	Quarterly Status Reports
Dr. Papsidero	X	X					X	X	X
Robert Price	X	X	X	X	X	X	X	X	X
Charles Maynard	X	X	X	X	X	X	X	X	X
Pam Felker	X			X	X	X	X	X	X
Karen Veenendaal	X			X	X	X	X	X	X
Sue Hedrick	X			X		X	X	X	X
Syed Haque	X			X		X	X	X	X
Eric Hedrick	X		X	X	X	X	X	X	X
ITV Staff			X	X				X	X
WKAR Staff			X	X				X	X
Faculty Consultants								X	X
Learning Service								X	X
EDP								X	X

vary with staff members and should be considered a very important motivating factor in the management system.

Monitoring is the next function of management. Monitoring is primarily concerned with identifying any deviation from the plans of the system. Monitoring includes:

1. Identifying deviation between what is planned and what is happening, through the communication process.
2. Clarifying problem areas.
3. Analyzing problem areas.
4. Developing and implementing corrective measures.

The communication system which is established can serve to provide feedback for monitoring purposes (1). The manager must identify specific indicators or criteria and points at which these key indicators or criteria will be measured. The use of staff meetings, periodic reports and/or examinations of the products on a regular basis could serve as methods for applying criteria. Once any deviation is identified, the manager must clarify the dimension of the problem (2). Clarification simply menas getting as much information on the problem as possible. Once data is gathered on the problem, the manager needs to analyze the data from the problem area (3) to determine the nature and extent of the problem. The criteria can help to serve in this analysis process. The manager must then develop a plan and implement the plan (4) as soon as possible. The manager may find the problem to be with such items as the work plan, an unrealistic time schedule, the competency of an individual, inappropriate communication plans, or any one of hundreds of potential problem areas.

Assessment is the last function and is concerned primarily with a design and process of gathering data about the development/management system for the purpose of deciding what to improve about the system. Assessment includes:

1. Defining the purpose of assessment.
2. Determining the kinds of information that should be collected.
3. Determining how the information will be collected and analyzed.
4. Collecting the information.
5. Drawing conclusions from the information.
6. Making decisions about the system.

Once the manager has determined his particular purpose for assessing the system, the rest of the assessment function becomes relatively clear. A general purpose is to identify as many problem areas within each function as possible. This may include such planning activities as poorly written objectives, or such organizational activities as poor task assignments, or badly written work plans. Communication methods might need to be improved, or monitoring points and criteria changed. Monitoring can provide a vast amount of data for improving the system if it is documented. It could even be looked at as an ongoing assessment. Once specitic purpose of assessment is clearly written, the specific information that needs to be collected can be identified (2). In this process, the manager may find some desirable information is too expensive or time-consuming to collect, and some information may be impossible to collect. In this process the manager must be able to balance the desirable against the feasible. The manager must then determine how the information will be collected (3). This means the development of instruments and specific methods for collection. The method and thoroughness by which assessment is

done will vary with the number of staff and time allocated to this task. The collection plan and schedule should not create a major interference with other staff activities, and may be overwhelming if it is all gathered at the end of the project. Once the information is collected (4), it can be analyzed and conclusions can be drawn (5). After this is done, the manager must be prepared to respond to: What happened? Who did what? When and why? And of what value was it to the product? The manger must then make decisions about improving the system (6) in terms of the economic, social and political impact of these decisions. Managers must also remember that they have biases and values that influence their conclusions and judgments. It's easy to identify problems that threaten our roles and self-image and make changes to enhance our degree of comfort.

Once all five functions (planning, organizing, coordinating, monitoring and assessment) have been applied to each development step, the developer/manager will: (1) have a detailed operational plan for the project, (2) be organized to complete the project, (3) have a coordinating system established for the entire project (complete with a communication system), (4) will be informed as to progress (monitoring), and (5) will have a specific design for assessing the management of the entire project.

It is obvious the more complex the project, the more thought the developer/manager needs to put into management. If the developer is working by himself on a particular product, less control needs to be exercised because fewer people are involved. However, the larger the system becomes, the greater the need for a designed, written management system.

It has been my experience that the greatest number of problems occurring in the management of any development system are in the area of sub-system

interface, the interaction process between developer and client or client system, between developer and staff or staff and staff, or any other interacting elements of the system. Problems inevitably arise, through lack of communication, around different assumptions and expectations of the people element of the system, and they are numerous. A well designed and energy consuming coordinating function which encourages constant, open communication can establish and maintain positive interfaces between all elements of the system and reduce interface conflict significantly.

What I have attempted to do in this brief paper is to show how certain management functions can be applied to steps in the instructional development process. I listed and defined five functions of management, and then related the specific components to selected steps of instructional development. In addition, I provided some specific examples of tools that can be used in operationalizing this approach. It is my hope that instructional developers will expand this related body of knowledge as it relates to their own discipline.

APPENDIX A
An Example of a Communication Plan

Lines of Communication:

The development of Human Medicine 190 will be the primary responsibility of the Office of Health Services Education and Research under a grant from the Venture Fund. The OHSER staff will be working in close collaboration with the development teams from Instruction Television, WKAR, Channel 23, Learning Service and various consulting faculty and staff members. The following chart is a diagram of management communication as presently conceived:

Lines of Communication Chart Legend:*

KIND OF INFLUENCE	MEANING
1. May recommend or suggest	In a healthy organization any individual is allowed to make suggestions to a person who can authorize action.
2. Must be informed	Some individuals need to know the result of a decision in order to take the appropriate coordinating action. Usually, this individual will be affected by a decision or will need to implement it.
3. Must be consulted	Some individuals must be given an opportunity to influence the decision making process by presenting information, demonstration or proof. Usually, this individual is limited to influencing the decision making by persuasion. He should be consulted in time for his contribution to make a genuine difference in the final decision.

*From Wallen, John C., Charting the Decision Making Structure of an Organization. Portland, Oregon: Northwest Regional Educational Laboratory, May 1970.

APPENDIX A (continued)
PROJECT DEVELOPMENT -- LINES OF COMMUNICATION*

PROJECT PARTICIPANTS	KINDS OF INFLUENCE				
	MAY MAKE SUGGESTIONS	MUST BE INFORMED	MUST BE CONSULTED	APPROVAL MUST BE SECURED	MAY AUTHORIZE
OHSER Staff:					
Project Directors:					
Dr. Papsidero	X	X	X	X	X
Robert Price	X	X	X	X	X
Instructional Development:					
Charles Maynard	X	X	X		X
Pam Felker	X	X			
Karen Veenendaal	X	X			
Media Application:					
Eric Vonn Hedrick	X		X		
Evaluation Specialists:					
Sue Hedrick	X	X	X		
Syed Haque	X	X	X		
Media Production:					
Project Directors:					
Dr. Jorgenson (ITV)	X		X		
Robert Page (WKAR)	X		X		
Production Staff	X		X		
Consultants:					
Learning Service:					
Dr. Abedor	X		X		
Subject Matter Experts	X		X		
Pilot Students	X		X		

*From Wallen, John C., Charting the Decision Making Structure of an Organization. Portland, Oregon: Northwest Regional Educational Laboratory, May 1970.

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